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EXAMINER				
CALANDRA, ANTHONY J				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/566,262

Applicant(s)

GOTO ET AL.

Examiner

ANTHONY J. CALANDRA

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☒ Claim(s) 9, 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/30/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-850)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 6/30/2006 and 1/30/2006

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Detailed Office Action

1. The communication dated 1/30/2006 has been entered and fully considered.
2. Claims 1-24 are currently pending.

Claim Objections

3. Claim 9 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 9 states that the recycling process is a deinking process, however, washing and flotation of claim 5 are clearly deinking steps therefore claim 9 does not limit the scope of claim 5 further.
4. Claim 24 incorrectly states it is dependent on claim 14 which is a method claim. It should be dependent on claim 15.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claim 1-14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 7, and 11-15 of copending Application No. 11/884012. Although the conflicting claims are not identical, they are not patentably distinct from each other because the cavitation process of the copending claims will in addition to refining the pulp also de-ink the pulp simultaneously.

Instant claim 1, 10, 11 and 12 see copending claims 1, 2, 7 and 11-15.

Instant claim 2 see copending claim 3.

Instant claim 4 see copending claim 11-14.

Instant claims 5 and 9 see copending claims 1, 2, 3 7, and 11-15.

Instant claim 6, 7, 8, and 13 see copending claims 1, 2, 3 and 11-15. While the copending application does not disclose the velocity of the liquid jet or the pressure of the liquid jet, at the time of the invention it would have been obvious to optimize these components.

Instant claim 14 see copending claim 11.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 5, 6, 7, 9, 13, and 20-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 5 and 9, the applicant states that the ink is stripped by cavitation and there is a subsequent step of flotation. It is not clear if this subsequent step of flotation occurs after the pulp has left the cavitation reactor or if the cavitation reactor is the flotation unit. For purpose of examination the examiner has addressed both possibilities. Claim 9 is dependent on claim 5.

Claims 6, 7 and 13 recite pressures as limitations. Claim 6, recites a formula with pressure and claims 7 and 13 recite a pressure limitation measured in MPa. It is not clear to the examiner whether these pressures are 'absolute' pressures or 'gauge' pressures. Therefore the examiner cannot readily determine whether the claim limitations are based on pressures that are absolute or gauge pressure. As such the proper metes and bounds of the patent protection desired cannot be determined. Typically when dealing with measuring line pressures the gauge pressure is used in the pulp and paper industry and therefore, for the purpose of examination the examiner has interpreted the pressures as gauge pressures.

9. Claim 20 recites the limitation "separating means" inline 4. There is insufficient antecedent basis for this limitation in the claim. Claim 21 is dependent on claim 20.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claim 10 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Handbook For pulp and Paper Technologists by SMOOK, hereinafter SMOOK.

Claim 10 is written as a product by process claim. The product is a deinked pulp made from waste paper which SMOOK discloses [pg. 219 Figure 14-18]. The process to make the product does not add a limitation to the product unless it produces a product with different properties [see e.g. MPEP 2113].

[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process."
In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)

Therefore it is the examiners position that a deinked recycled pulp of SMOOK is substantially similar to the deinked recycled pulp of the instant claim or the differences between the two products would have been obvious.

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Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 1-4, 6, 7, 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent # 3,834,982 SOLINITSYN et al., hereinafter '982 patent, in view of foreign patent document SU 720085 PILIPENKO et al., hereinafter SOVIET '085, as evidenced by Handbook For Pulp and Paper Technologists by SMOOK, hereinafter SMOOK.

Examiner refers to and has included with the office action the DERWENT summary of SOVIET '085.

As for claim 1-3, 11, and 12, the '982 patent discloses a method for treating pulp using cavitation which delaminates and fiberates fibers using a fluid jet (*method for producing recycled pulp characterized in that bubbles are generated by cavitation and contacted with a pulp suspension to strip a contaminant deposited on pulp fibers and inorganic particles during the process of recycling waste paper* [column 7 lines 18-27,

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column 8 lines 29-52, and column 9 lines 9-14 Figure 1). Figure 1 shows a pulp slurry exiting holding tank (5) and then being pumped by pump 3 through cavitation nozzle (1) and then into reactor (6). The '982 patents discloses treating the pulp fiber to separates waste water from the fiber [column 7 lines 65-67]. However, it is not clear if this waste water implicitly infers that the pulp is repulped waste pulp.

SOVIET '085 discloses that waste paper can be used in a cavitation reactor for fibrillation which enhances the paper [DERWENT summary]. At the time of the invention it would have been obvious to a person of ordinary skill in the art to use waste paper in the cavitation reactor of the '982 patent. A person of ordinary skill in the art would be motivated to use waste paper in the '892 method as SOVIET '085 states that cavitation reactions enhance the waste paper [DERWENT Summary]. Further, it is prima facie obvious to substitute one known component for another. In the instant case it would have been obvious to substitute one known pulp type of the '982 patent for the other known pulp type of the SOVIET '085 patent. A person of ordinary skill in the art would reasonably expect that the SOVIET '085 fibers would be delaminated like the fibers of the '982 patent. Examiner notes the cavitation which delaminates the fibers would have the effect of removing contaminants deposited on the fibers.

As for claim 4, SOVIET '085 does not disclose the contaminants of the waste fiber. However, it is the examiners position that ink is a common contaminant of waste fiber as evidenced by SMOOK [pg. 214-215].

As for claim 6, the '892 patent discloses a pressure developed of 30-40 meters H₂O but does not disclose the pressure upstream or downstream of the pump. SOVIET

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'085 discloses '75-120 m water pressure at the inlet and 20-30 m water pressure at the outlet' [Derwent Summary]. This is equal to an instant claimed pressure ratio of 0.16 to 0.4 which fall within the instant claimed range [using equation 2].

As for claim 7, the '892 patent discloses a pressure developed of 30-40 meters H₂O but does not disclose the pressure upstream or downstream of the pump. SOVIET '085 discloses '75-120 m water pressure at the inlet and 20-30 m water pressure at the outlet' [Derwent Summary]. The pressure inlet pressure range of 75-120 meters of water column is equivalent to 0.73 MPa – 1.174 MPa which falls within the instant claimed range [(conversion as follows: meters water column * (3.28 ft/meter) * (1 psig/2.31 ft) * (0.006894 MPa /psig)].

As for claim 10, the combination of SOVIET '085 and the '892 patent treat waste paper in a cavitation reactor. As the treatment process of claim 1 is substantially similar to the prior art process it is the examiners position that it would produce substantially the same recycled pulp.

As for claim 13, the '892 patent discloses a pressure developed of 30-40 meters H₂O but does not disclose the pressure upstream or downstream of the pump. SOVIET '085 discloses '75-120 m water pressure at the inlet and 20-30 m water pressure at the outlet' [Derwent Summary]. This is equal to an instant claimed pressure ratio of 0.16 to 0.4 which fall within the instant claimed range. The pressure outlet pressure range of 20-30 meters of water column is equivalent to 0.196- 0.29 MPa which falls within the instant claimed range [(conversion as follows: meters water column * (3.28 ft/meter) * (1 psig/2.31 ft) * (0.006894 MPa /psig)]. The pressure inlet pressure range of 75-120 meters of water column is equivalent to 0.73 MPa – 1.174 MPa which falls within the

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instant claimed range [(conversion as follows: meters water column * (3.28 ft/meter) * (1 psig/2.31 ft) * (0.006894 MPa /psig)].

As for claim 14, the '982 patent discloses a pulp consistency of 8% which falls within the instant claimed range [column 10 lines 35-38].

15. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent # 3,834,982 SOLINITSYN et al., hereinafter '892 patent, in view of foreign patent document SU 720085 PILIPENKO et al., hereinafter SOVIET '085, as applied to claims 1 and 2 above, and further in view of Applicant's admitted prior art, hereinafter AAPA.

Neither, the '892 patent nor SOVIET '085, disclose the velocity of the fluid jetting from the nozzle/orifice. However, AAPA states that if the velocity is too low the pressure drop is too low, and that if the velocity is too high the pressure is too high. Therefore the velocity and pressure are directly related. As SOVIET '085 discloses a pressure drop that falls within the instant claimed range [see above, rejection claim 13], it is the examiner position that the jet velocity would also fall within the instant claimed range.

16. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent # 3,834,982 SOLINITSYN et al., hereinafter '892 patent, in view of foreign patent document SU 720085 PILIPENKO et al., hereinafter SOVIET '085, as applied to claims 1 and 2 above, and further in view of U.S. Patent 7,264,182 RICHTER et al., hereinafter RICHTER.

Neither, the '892 patent nor SOVIET '085, disclose the velocity of the fluid jetting from the nozzle/orifice. RICHTER discloses cavitating nozzles [abstract], for treating organic suspensions. RICHTER discloses that the speed and pressure affect the degree of

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breakup [column 4 lines 45-65]. RICHTER further states that the ideal speed is 14 m/s which falls within the instant claimed range. At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the cavitation nozzle speed of 14 m/s as disclosed by RICHTER. A person of ordinary skill in the art would be motivated to use this speed as it is the ideal speed.

17. Claims 5, 9, 15-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent # 3,834,982 SOLINITSYN et al., hereinafter '982 patent, in view of foreign patent document SU 720085 PILIPENKO et al., hereinafter SOVIET '085, and by Handbook For Pulp and Paper Technologists by SMOOK, hereinafter SMOOK.

As for claims 5 and 9, '982 patent discloses a method for treating pulp using cavitation which delaminates and fiberates fibers using a fluid jet (*method for producing recycled pulp characterized in that bubbles are generated by cavitation and contacted with a pulp suspension to strip a contaminant deposited on pulp fibers and inorganic particles during the process of recycling waste paper* [column 7 lines 18-27, column 8 lines 29-52, and column 9 lines 9-14 Figure 1). Figure 1 shows a pulp slurry exiting holding tank (5) and then being pumped by pump 3 through cavitation nozzle (1) and then into reactor (6). The '982 patents discloses treating the pulp fiber to separates waste water from the fiber [column 7 lines 65-67]. However, it is not clear if this waste water implicitly infers that the pulp is repulped waste pulp.

SOVIET '085 discloses that waste paper can be used in a cavitation reactor for fibrillation which enhances the paper [DERWENT summary]. At the time of the invention it would have been obvious to a person of ordinary skill in the art to use waste

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paper in the cavitation reactor of the '982 patent. A person of ordinary skill in the art would be motivated to use waste paper in the '892 method as SOVIET '085 states that cavitation reactions enhance the waste paper [DERWENT Summary]. Further, it is prima facie obvious to substitute one known component for another. In the instant case it would have been obvious to substitute one known pulp type of the '982 patent for the other known pulp type of the SOVIET '085 patent. A person of ordinary skill in the art would reasonably expect that the SOVIET '085 fibers would be delaminated like the fibers of the '982 patent. Examiner notes the cavitation which delaminates the fibers would have the effect of removing contaminants deposited on the fibers.

The '982 patent discloses that by adding air into the process the reactor can act as a flotation device which entrains contaminants by flotation from wastewater containing fibers [column 15 lines 40-57]. Therefore the '982 patent discloses flotation after the cavitation nozzle. The '982 patent does not disclose any steps subsequent to flotation. SMOOK discloses there are multiple flotation steps and cleaning steps that are used in paper deinking [pg. 216-217]. At the time of the invention it would have been obvious to a person of ordinary skill in the art to have a second flotation step subsequent to the cavitation flotation step. A person of ordinary skill in the art would be motivated to do so to obtain brighter and more deinked pulp.

As for claim 15, 17 and 22 the '982 patent discloses pulp processing equipment with a nozzle for emitting a pressurized jet of liquid (1) which then enters into processing unit (6) [Figure 1]. The patent discloses a pump (3) upstream of the nozzle (1) [Figure 1]. The '982 patent discloses that the pressure values can be altered to effect the cavitation. One method given by the '982 patent is adjusting the height of pipe '8'.

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Adjusting the height of a pipe effectively changes the static pressure [column 10 lines 60-67]. SOVIET '085 patent discloses that for wastepaper treatment a upstream pressure of 75-120 m water pressure at the inlet and a downstream pressure of 20-30 m water pressure at the outlet of the cavitation unit. SOVIET '085 does not disclose how the pressure is controlled. The method of adjusting pressure in the '982 is a fixed method (i.e. once set it cannot be changed without reorganizing equipment). SMOOK discloses that control valves, controlled by a DCS, can be used to adjust pressure [pg. 356 Figure 24-2, pg. 357-359]. At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the apparatus of '982 patent with the control valve of SMOOK upstream of the cavitation nozzle and downstream of the vessel. A person of ordinary skill in the art would do so to control both the pressure upstream and downstream of the cavitation nozzle automatically. The upstream and downstream pressures effect cavitation. A person of ordinary skill in the art would be motivated by SMOOK who states that controls allow for efficient operation of processes [pg. 356] and to control the process within well defined limits of variation [pg. 355]. SMOOK also states that today very few elements are under manual control [pg. 355]. Automating a manual activity is generally *prima facie* obvious [see e.g. MPEP 2144.04 (III) Automating a manual activity].

The '982 patent discloses after vessel (6) that the flow is split between lines (7) and (9) [Figure 1]. The '982 patent does not explicitly disclose how the flow is controlled. SMOOK discloses that control valves, controlled by a DCS, can be used to adjust pressure [pg. 356 Figure 24-2, pg. 357-359]. At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the apparatus of

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'982 patent with a flow control valve of SMOOK. A person of ordinary skill in the art would do so to control both the flow rates to control the production rate of the device. A person of ordinary skill in the art would be motivated by SMOOK who states that controls allow for efficient operation of processes [pg. 356] and to control the process within well defined limits of variation [pg. 355]. SMOOK also states that today very few elements are under manual control [pg. 355]. Automating a manual activity is generally *prima facie* obvious [see e.g. MPEP 2144.04 (III) Automating a manual activity].

As for claim 16, the '982 patent vessel is a continuous treatment vessel [column 15 line 75].

As for claims 18 and 19, the '982 patent shows a general reactor (6) in Figure 1. The reactor has additional connections for 7 and 9 which are outlets (although could be used as an inlet for washing). Also additional inlets for cleanout ports are well known in the art. The reactor is shown to have a conical bottom. The '982 patent says that the treatment vessel can be a flotation device [column 15 lines 35-55]. SMOOK discloses a centrifugal cleaner which has a conical shape [pg. 115 Figure 9-32]. At the time of the invention it would have been obvious to substitute the flotation device of the '982 patent for the centrifugal cleaner of SMOOK. Both devices are used to clean pulp, more specifically both devices are used to clean recycled pulp [pg. 219 Figure 14-18]. The centrifugal cleaner of SMOOK has an elutriation liquid inlet [Figure 9-32].

As for claim 20, the examiner has interpreted the flotation cell (6) of the '982 patent as the separating means [Figure 1]. It has line 17 which returns liquid from the vessel to tank (5). From tank (5) some of the liquid overflows and is returned to the vessel by way of pump (4).

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As for claim 21, the outlet line 7 goes into the tank (5). In the tank the liquid can either go out fork (20) or over the baffle wherein it is then circulated through the pump to the inlet nozzle.

As for claim 23, the processing equipment/separating means of the '982 patent vessel is a flotation unit [column 15 lines 40-57]

As for claim 24, the processing equipment of the '982 patent vessel is a flotation unit [column 15 lines 40-57].

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. CALANDRA whose telephone number is (571) 270-5124. The examiner can normally be reached on Monday through Thursday, 7:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AJC

/Eric Hug/

Primary Examiner, Art Unit 1791